Patent claims

1. Method of communicating frames of digital data by OFDM modulated signals comprising a first plurality of payload carrying sub-channels and a second plurality of pilot carrying sub-channels, whereby

consecutive frames of payload data is are associated with a given pilot configuration and transmitted, and whereby

prior to the transmission of a frame of payload data, each of the plurality of pilot configurations and associated frames of payload data are evaluated with regard to PAPR, whereby the pilot configuration being associated with the lowest PAPR value is being chosen for transmission.

2. Method according to claim 1, whereby the plurality of pilot configurations represent block codes allowing error correction at the receiver.

3. Method according to claim 1, whereby a control word indicative of the pilot configuration associated with a subsequent frame or a particular frame of a subsequent given order number is inserted into the frame.

4. Method according to claim 3, wherein for every n-1 frame in a frame period (FP), the complete frame comprising both payload data and the control word is optimised with regard to PAPR.

5. Method according to claim 4, wherein every n frame in a frame period (FP) is not optimised with regard to PAPR.

6. Method according to any previous claim wherein, the sub-carriers carrying the pilot signals are digitally modulated at a lower order than sub-carriers carrying the payload data.

7. Method according to claim 2 wherein the block code forming pilot configurations have a hamming distance of ≥3.

8. Method according to any previous claim wherein the sub-channels are modulated by BPSK or n-QAM modulation.

9. Transmitter comprising

a mapping stage, mapping payload data on a subset of a plurality of frequency orthogonal sub-carriers

a plurality of parallel-coupled pilot insertion stages (3_1 – 3_2) coupled to the mapping stage, each pilot insertion stage inserting a unique pilot configuration on at least another subset of sub-carriers,

a respective inverse fast Fourier transmission stage (4_1 – 4_n) processing signals from each respective pilot insertion stage (3_1 – 3_n),

a PAPR measuring and pilot decision stage, measuring and evaluating PAPR for each unique pilot configuration

whereby

consecutive frames of payload data are associated with a given pilot configuration and transmitted, and whereby

prior to the transmission of a frame of payload data, each of the plurality of pilot configurations and associated frames of payload data are evaluated with regard to PAPR, whereby the pilot configuration being associated with the lowest PAPR value is being chosen for transmission.

10. Transmitter according to claim 9, wherein each unique pilot configuration has a hamming distance of at least three to any other pilot configuration.

11. Transmitter according to claim 9, moreover comprising a control word insertion stage, inserting a control word in a transmitted frame, the control word being indicative of the pilot configuration used in a frame of any given subsequent order number.

12. Receiver comprising a fast Fourier transform stage for transforming baseband signals into to frequency signals relating to individual sub-channels, and

demodulation stage for performing individual demodulation, such as n-QAM, of the frequency signals into bit estimates,

the receiver furthermore comprising a

pilot extraction stage for extracting block coded pilot signals into assumed pilot configurations,

the assumed pilot configuration being provided to a frequency estimator for adjusting the fast Fourier transform stage and to a channel estimator for adjusting the demodulating stage.

13. Receiver comprising a fast Fourier transform stage for transforming baseband signals into to frequency signals relating to individual sub-channels, and

demodulation stage for performing individual demodulation, such as n-QAM demoduation, of the frequency signals into bit estimates,

the receiver furthermore comprising a pilot extraction stage for extracting block coded pilot signals into assumed pilot configurations,

the assumed pilot configuration being provided to a frequency estimator for adjusting the fast Fourier transform stage and to a channel estimator for adjusting the demodulating stage.

14. Receiver comprising a fast Fourier transform stage for transforming baseband signals into to frequency signals relating to individual sub-channels and a

demodulation stage for performing individual demodulation, such as n-QAM, of the frequency signals into bit estimates,

the receiver furthermore comprising a control word extraction stage for extracting a code word of any subsequent order into an assumed pilot configuration,

the assumed pilot configuration being provided to a frequency estimator for adjusting the fast Fourier transform stage and to a channel estimator for adjusting the demodulating stage.